

An assessment of telemedicine possibilities in massive casualties situations

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Abstract

The use of existing possibilities of Telemedicine Center of Kaunas University of Medicine allows the live distant consultations from high-level medical specialised centers to rural areas. On July 2004 the Telemedicine Center took part in the RESCUER/MEDCEUR project exercise. A special objective was the use of telemedicine facilities for distant consultations and sorting of victims directly at the event place. Telemedicine Center used appropriate telecommunication devices for joint activities of civil and multinational military services in critical situations such as mass casualty events. There were used ISDN lines and IP radio-connection.

On the final and most intensive day of the anti-terrorism drills, the multinational force of medics at the Kairiu Training Range in Lithuania reacted to a large mass casualty event – treating hundreds of victims from a simulated train crash. Using on-line telemedicine facilities from Kaunas Medical University Hospital there were corrected the tactics of giving the first help and sorting of casualties. The most complicated initiated cases of eye trauma, neurosurgical trauma, maxilloface trauma and traumatic amputation of limbs evaluated and selected for emergent evacuation to the third level hospitals. All those cases transported to Kaunas and Vilnius Universities Hospitals by helicopters (200 and 300 km from the event place).

The common use of existing military and civil telemedicine infrastructure showed the possibilities of interaction in management, giving the first help and sorting of casualties between military and civil medical services during the rescue operations.

Key words: telemedicine, civil and military medicine, teleconsultations, medical information.

Introduction

The use of existing possibilities of Telemedicine Center of Kaunas University of Medicine (<http://tmc.kmu.lt>) allows the live (on-line) distant consultations from high-level medical specialised centers to rural areas [1-3]. In order to expand the use of distant consultations facilities is essential to apply its possibilities in large mass casualty events, decreasing geographical isolation of the event place.

On 23 and 28 of July 2004 the Telemedicine Center took part in the RESCUER/MEDCEUR project exercise. MEDCEUR – Medical Central Europe Exercises. RESCUER/MEDCEUR 2004 is a USAREUR led “In the Spirit of Partnership for Peace” (ISO PfP) exercise designed to train US, NATO and Partner nations, to respond to a disaster relief/mass casualty situation. 393 participants from 16 countries, namely Lithuania, Armenia, Azerbaijan, Bulgaria, Estonia, Georgia, United States of America, Croatia, Latvia, Moldova, Romania and Ukraine took part in the RESCUER/MEDCEUR 2004 exercises, alongside the 6 observers from the Netherlands, Poland, Luxembourg, and Germany [4].

The main objectives of exercises were:

- To train medical subdivisions with interaction between international medical forces;
- Solution of massive casualties events;
- The actions of the first reaction group;
- To assess collaboration between military medical service and civil health care services;
- A special project (telemedicine) was the use of telemedicine facilities for distant consultations, management of interaction between military and civil medical services and sorting of casualties directly at the event place.

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Materials and methods

The main scenario of exercises was:

- The terrorists groups trying to complicate the joining NATO of Estonia, Latvia and Lithuania provoked fires in the woods using high explosives.
- Demonstrating help and solidarity USEUCOM together with NATO and ISO PfP countries dislocated special military groups for the fight against the fires and for the humanitarian aid.

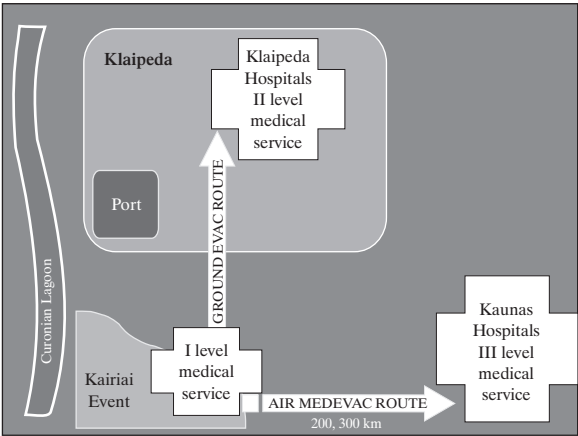
Exercises held at the Kairiu training range in Lithuania near Klaipeda (Fig. 1). Participants involved from medical side were:

- Emergency Center of Klaipeda city;
- Hospital of Klaipeda city;
- Klaipeda District Hospital;
- Klaipeda Marine Hospital;
- Emergency Hospital of Vilnius University;
- Kaunas Medical University Hospital;
- Telemedicine Center of Kaunas University of Medicine.

On the place of event the Telemedicine Center arranged live, direct high-level medical multispecialists teleconsultations from Kaunas Medical University Hospital. Military and civil networks were involved in this project (Fig. 2).

Telemedicine Center used appropriate telecommunication devices (Satellite, ISDN, IP) for joint activities of civil and multinational military services in critical situations such as mass casualty events. There were used ISDN lines and IP radio-connection [5].

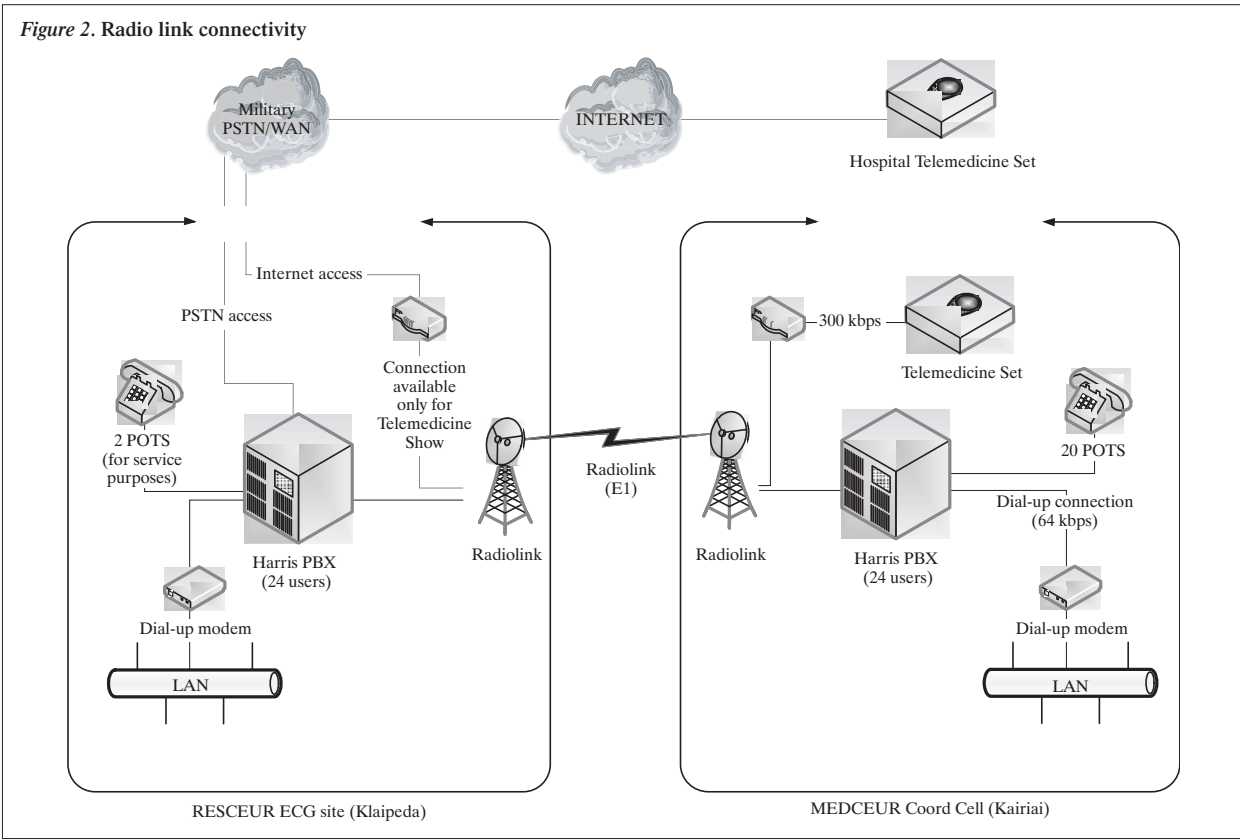
Figure 1. Dislocation of involved medical services



Results

On 28 of July, the final and most intensive day of the anti-terrorism drills, the multinational force of medics at the Kairiu Training Range in Lithuania reacted to a large mass casualty event – treating hundreds of victims from a simulated train crash. Using on-line telemedicine facilities from Kaunas Medical University Hospital there were corrected the tactics of giving the first help and sorting of casualties. The most complicated initiated cases of eye trauma, neurosurgical trauma, maxillo-

Figure 2. Radio link connectivity



face trauma and traumatic amputation of limbs evaluated and selected for emergent evacuation to the third level hospitals. All those cases transported to Kaunas and Vilnius Universities Hospitals by helicopters (200 and 300 km from the event place).

Conclusions

The common use of existing military and civil telemedicine infrastructure showed the possibilities of interaction in management, giving the first help and sorting of casualties between military and civil medical services during the rescue operations.

These results show the facilities of existing telemedicine infrastructure and needs for further development of existing system into International Integrated eHealth Network for very fast international exchange of medical information, remote consultations of high skilled specialists in emergent or a large mass casualty events from the best civil and military medical centers.

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